What is claimed is:

1. A heat-dissipating device of a semiconductor device, comprising:

a first wiring substrate on which semiconductor elements are mounted;

a second wiring substrate that supports the back surface of said first wiring substrate, i.e., the surface of said first wiring substrate that is on the opposite side from a first substrate active surface, which is the surface on which said semiconductor elements are mounted;

a heat dissipator that is thermally and mechanically joined to the back surfaces of said semiconductor elements, which are the surfaces of said semiconductor elements that are on the opposite side from said semiconductor element surfaces that confront said first substrate active surface; and

conductors that extend from said first substrate active surface as far as an electrical junction surface of said second wiring substrate in the planar direction of said first substrate active surface or of a plane that approaches that of said first substrate active surface.

2. A heat-dissipating device of a semiconductor device according to claim 1, wherein the distance of separation, in an orthogonal direction that is orthogonal to said

planar direction, between said first substrate active surface and said electrical junction surface is substantially zero.

3. A heat-dissipating device of a semiconductor device according to claim 2, wherein said distance of separation is shorter than the thickness of said first wiring substrate.

4. A heat-dissipating device of a semiconductor device according to claim 1, wherein the length of said conductors does not include the distance between the edge of said first wiring substrate and the edge of said second wiring substrate.

5. A heat-dissipating device of a semiconductor device according to claim 2, wherein the length of said conductors does not include the distance between the edge of said first wiring substrate and the edge of said second wiring substrate.

6. A heat-dissipating device of a semiconductor device according to claim 3, wherein the length of said conductors does not include the distance between the edge of said first wiring substrate and the edge of said second wiring substrate.

7. A heat-dissipating device of a semiconductor device according to claim 2, wherein said first wiring substrate is inset into said second wiring substrate in said orthogonal direction.

8. A heat-dissipating device of a semiconductor device according to claim 3, wherein said first wiring substrate is inset into said second wiring substrate in said orthogonal direction.

9. A heat-dissipating device of a semiconductor device according to claim 1, wherein said heat dissipator is joined to said semiconductor elements with a heat conductive adhesive layer interposed.

10. A heat-dissipating device of a semiconductor device according to claim 1, further comprising:

a stacked heat dissipator that is thermally and mechanically joined by way of an interposed heat conductive buffer layer to a heat-dissipating surface of said heat dissipator that is the surface on the opposite side of said heat dissipator from the side on which said semiconductor elements are arranged; and

supports that support said stacked heat dissipator upon said first wiring substrate;

wherein said stacked heat dissipator has a more extensive heat-dissipating surface than said heat dissipator.

11. A heat-dissipating device of a semiconductor device according to claim 10, further comprising a heat conductive buffer layer that is interposed between said stacked heat dissipator and said supports.

12. A heat-dissipating device of a semiconductor device according to claim 10, wherein said supports are formed as a portion of said heat dissipator.

13. A heat-dissipating device of a semiconductor device according to claim 10, wherein another heat conductive adhesive layer is interposed in said supports.

14. A heat-dissipating device of a semiconductor device according to claim 11, wherein another heat conductive adhesive layer is interposed in said supports.

15. A heat-dissipating device of a semiconductor device according to claim 12, wherein another heat conductive adhesive layer is interposed in said supports.

16. A heat-dissipating device of a semiconductor device

according to claim 10, further comprising spacers that are interposed between said stacked heat dissipator and said second wiring substrate.

17. A heat-dissipating device of a semiconductor device according to claim 11, further comprising spacers that are interposed between said stacked heat dissipator and said second wiring substrate.

18. A heat-dissipating device of a semiconductor device according to claim 12, further comprising spacers that are interposed between said stacked heat dissipator and said second wiring substrate.

19. A heat-dissipating device of a semiconductor device according to claim 13, further comprising spacers that are interposed between said stacked heat dissipator and said second wiring substrate.

20. A heat-dissipating device of a semiconductor device according to claim 16, wherein said stacked heat dissipator and said second wiring substrate are joined by bolts that pass through said spacers.

21. A heat-dissipating device of a semiconductor device according to claim 1, wherein:

the area of said second wiring substrate is greater than the area of said first wiring substrate;

said second wiring substrate has a depression in an orthogonal direction that is orthogonal to said first substrate active surface; and

said first wiring substrate is set inside said depression.

22. A heat-dissipating device of a semiconductor device according to claim 21, wherein:

said depression is formed as an opening that penetrates said second wiring substrate in said orthogonal direction;

said heat-dissipating device of a semiconductor device further comprises an additional heat dissipator having a surface that confronts the surface of said first wiring substrate that is opposite said first substrate active surface;

wherein said additional heat dissipator is thermally and mechanically joined to the periphery around said opening of said second wiring substrate; and

said heat-dissipating device of a semiconductor device further comprises a heat conductive buffer layer that is interposed between said first wiring substrate and said additional heat dissipator;

wherein said heat conductive buffer layer is

arranged inside said opening.

23. A heat-dissipating device of a semiconductor device according to claim 1, wherein said heat dissipator is provided with:

a plurality of joining portions for joining to a plurality of said semiconductor elements; and

a single main body that is thermally and mechanically joined as a single unit with said plurality of joining portions.

24. A heat-dissipating device of a semiconductor device according to claim 23 wherein said first wiring substrate is set into said second wiring substrate in said orthogonal direction.

25. A heat-dissipating device of a semiconductor device according to claim 24 wherein said joining portions are joined to said semiconductor elements with an interposed first heat conductive adhesive layer.

26. A heat-dissipating device of a semiconductor device according to claim 25, further comprising:

a stacked heat dissipator that is thermally and mechanically joined by way of an interposed heat conductive buffer layer to the surface on the side of said

main body of said heat dissipator that is opposite the side on which said semiconductor elements are arranged; and

supports that support said stacked heat dissipator on said first wiring substrate.

27. A heat-dissipating device of a semiconductor device according to claim 26, wherein a third heat conductive adhesive layer is interposed in said supports.

28. A heat-dissipating device of a semiconductor device according to claim 27, further comprising spacers that are interposed between said stacked heat dissipator and said second wiring substrate.

29. A heat-dissipating device of a semiconductor device according to claim 28, wherein said stacked heat dissipator and said second wiring substrate are joined by bolts that pass through said spacers.

30. A heat-dissipating device of a semiconductor device, comprising a first heat-dissipating structure and a second heat-dissipating structure; wherein:

said first heat-dissipating structure comprises:

a first wiring substrate;

a plurality of semiconductor elements that are

mounted on said first wiring substrate;

and

a first heat dissipator that is thermally and mechanically joined to said plurality of semiconductor elements

said second heat-dissipating structure comprises:

a second wiring substrate; and

a second heat-dissipating device that is supported on said second wiring substrate;

said first wiring substrate is electrically connected to said second wiring substrate by way of conductors each having one end that is electrically joined to said first wiring substrate and the other end electrically joined to said second wiring substrate;

a first substrate surface of said first wiring substrate to which said one end is joined is substantially parallel to a second substrate surface of said second wiring substrate to which said other end is joined, and the effective distance between the plane that contains said first substrate surface and the plane that contains said second substrate surface substantially approaches zero; and

said second wiring substrate is not present between said first substrate surface of said first wiring substrate and said first heat dissipator.

31. A heat-dissipating device of a semiconductor device according to claim 30, wherein said effective distance is shorter than the thickness of said first wiring substrate.

32. A fabrication method of a semiconductor device comprising steps of:

mounting a plurality of semiconductor elements on a first wiring substrate;

first joining for thermally and mechanically joining a first heat dissipator to said plurality of semiconductor elements;

second joining for mechanically joining said first heat dissipator to said first wiring substrate;

third joining for electrically joining said first wiring substrate and said second wiring substrate by means of conductors that extend in a planar direction that is substantially parallel to a first substrate surface of said first wiring substrate and a second substrate surface of said second wiring substrate;

fourth joining for mechanically joining a second heat dissipator to said second wiring substrate with spacers interposed; and

fifth joining for thermally and mechanically joining said second heat dissipator to said first heat dissipator.

33. A fabrication method of a semiconductor device

according to claim 32, further comprising steps of:

forming a depression in said second wiring substrate in a direction that is orthogonal to the substrate surface of said second wiring substrate; and

in said third joining step, setting said first wiring substrate into said depression to make said planar direction, in which said conductors extend, parallel with said first substrate surface of said first wiring substrate and said second substrate surface of said second wiring substrate.

34. A fabrication method of a semiconductor device according to claim 32, wherein said second joining step joins said first heat dissipator to said first wiring substrate with a heat conductive adhesive layer interposed.

35. A fabrication method of a semiconductor device according to claim 33, wherein said second joining step joins said first heat dissipator to said first wiring substrate with a heat conductive adhesive layer interposed.

36. A fabrication method of a semiconductor device according to claim 32, wherein said fifth joining step joins said second heat dissipator to said first heat dissipator with a heat conductive buffer layer interposed.

37. A fabrication method of a semiconductor device according to claim 33, wherein said fifth joining step joins said second heat dissipator to said first heat dissipator with a heat conductive buffer layer interposed.

38. A fabrication method of a semiconductor device according to claim 32, further comprising a sixth joining step for joining a third heat dissipator to said second wiring substrate.

39. A fabrication method of a semiconductor device according to claim 38, wherein said sixth joining step joins said third heat dissipator to said second wiring substrate with a heat conductive buffer layer interposed.